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NAS WHITING FIELD
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FINAL RECORD OF DECISION FOR SITE 13 NAS WHITING FIELD FL
9/22/2006
TETRA TECH NUS

Comprehensive **L**ong-term **E**nvironmental **A**ction **N**avy

CONTRACT NUMBER N62467-94-D-0888



Rev. 3
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Record of Decision for OU 12, Site 13, Sanitary Landfill Surface and Subsurface Soil

**Naval Air Station Whiting Field
Milton, Florida
USEPA ID No. FL2170023244**

Contract Task Order 0369

September 2006



Southeast

2155 Eagle Drive

North Charleston, South Carolina 29406

**RECORD OF DECISION
FOR
OPERABLE UNIT 12 - SITE 13, SANITARY LANDFILL
SURFACE AND SUBSURFACE SOIL**

**NAVAL AIR STATION WHITING FIELD
MILTON, FLORIDA
USEPA ID No. FL2170023244**

**COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT**

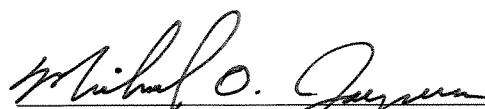
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**CONTRACT NO. N62467-94-D-0888
CONTRACT TASK ORDER 0369**

SEPTEMBER 2006

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CERTIFICATION OF TECHNICAL DATA CONFORMITY

The Contractor, Tetra Tech NUS, Inc., hereby certifies, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-94-D-0888 are complete, accurate, and comply with all requirements of this contract. The work and professional opinions rendered in this report were conducted or developed in accordance with commonly accepted procedures consistent with applicable standards of practice.

DATE: 30 September 2006

A handwritten signature in black ink, which appears to read "Michael O. Jaynes".

NAME AND TITLE OF CERTIFYING OFFICIAL: Michael O. Jaynes, P.E.
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ACRONYMS

ARARs	applicable or relevant and appropriate requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CG	Cleanup Goal
COC	Constituent of Concern
COPC	Constituent of Potential Concern
cPAHs	carcinogenic polynuclear aromatic hydrocarbons
ERA	Ecological Risk Assessment
EE	Envirodyne Engineers, Inc.
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDER	Florida Department of Environmental Regulation
FS	Feasibility Study
FSA	Feasibility Study Addendum
ft	feet/foot
G&M	Geraghty & Miller, Inc.
HHRA	Human Health Risk Assessment
HI	Hazard Index
HLA	Harding Lawson and Associates
IAS	Initial Assessment Study
IR	Installation Restoration
LUC	Land Use Controls
LUCIP	Land Use Controls Implementation Plan
mg/kg	milligrams per kilograms
NA	No Action
NACIP	Navy Assessment and Control of Installation Pollutants
NAS	Naval Air Station
Navy	United States Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NPW	net present worth
OU	Operable Unit
O&M	Operation & Maintenance
PRG	Preliminary Remediation Goal
RA	Remedial Action
RAOs	Remedial Action Objectives
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision

ACRONYMS (Continued)

SARA	Superfund Amendments and Reauthorization Act
SCTL	Soil Cleanup Target Level
SERA	Screening Ecological Risk Assessment
SVOCs	Semi Volatile Organic Compounds
TBC	To Be Considered
TRPH	Total Recoverable Petroleum Hydrocarbons
TtNUS	Tetra Tech, NUS, Inc.
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds

1.0 DECLARATION OF THE RECORD OF DECISION

1.1 SITE NAME AND LOCATION

Naval Air Station (NAS) Whiting Field is located approximately 5.5 miles north of the city of Milton, Florida in Santa Rosa County, about 25 miles northeast of Pensacola. Operable Unit (OU) 12 - Site 13, Sanitary Landfill, hereafter referred to as "Site 13", is located in the southeastern section of the facility near the South Air Field, at NAS Whiting Field. The approximate location of Site 13 is shown on Figure 1-1.

1.2 STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedy for OU 12 - Site 13, as Land Use Controls (LUCs) for surface and subsurface soils. Groundwater at NAS Whiting Field has been identified as a separate site (Site 40, Basewide Groundwater) and will be addressed in a future decision document. There is no surface water or sediment present at Site 13. The selected action was chosen by the United States Navy (Navy) and the United States Environmental Protection Agency (USEPA) in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Information supporting the selection of this action is contained in the Administrative Record for this site. The NAS Whiting Field Information Repository, including the Administrative Record, is located at the West Florida Regional Library, Milton Branch, 805 Alabama Street, Milton, Florida 32570, (850) 623-5565.

The Florida Department of Environmental Protection (FDEP) concurs with the selected remedy.

1.3 ASSESSMENT OF THE SITE

The Remedial Investigation (RI) Report for Site 13 [Harding Lawson and Associates (HLA), 1999] identified one volatile organic compound (VOC), three semi-volatile organic compounds (SVOCs), and 20 inorganic compounds in surface soil and seven VOCs, five SVOCs, 20 inorganic compounds, and cyanide in subsurface soil at Site 13. A human health risk assessment (HHRA) included in the *Risk Assessment Re-Evaluation Report of Soils, Sites 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18* [Tetra Tech NUS, Inc. (TtNUS), 2006c] was completed for Site 13 to predict whether the site would pose current or

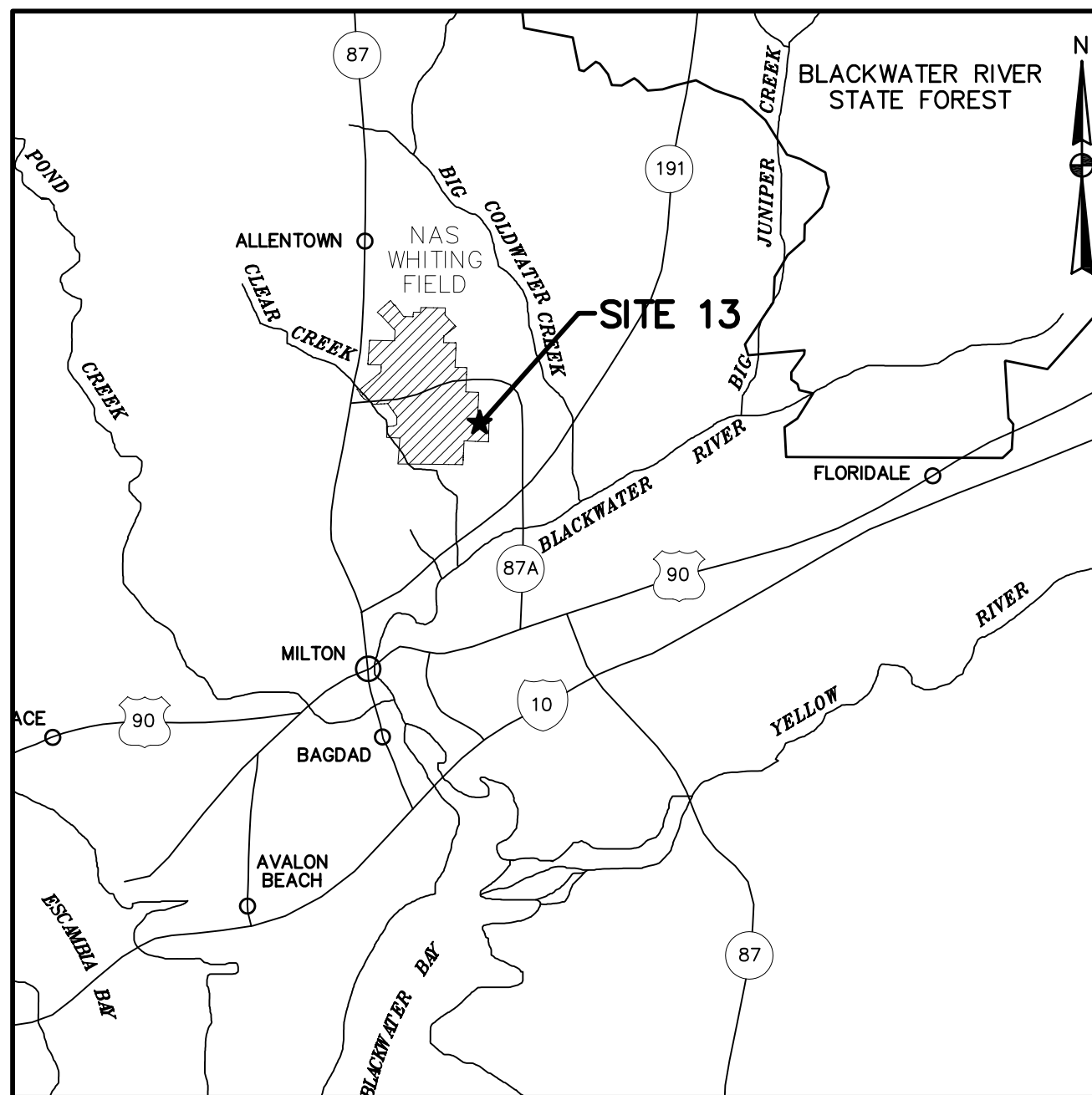
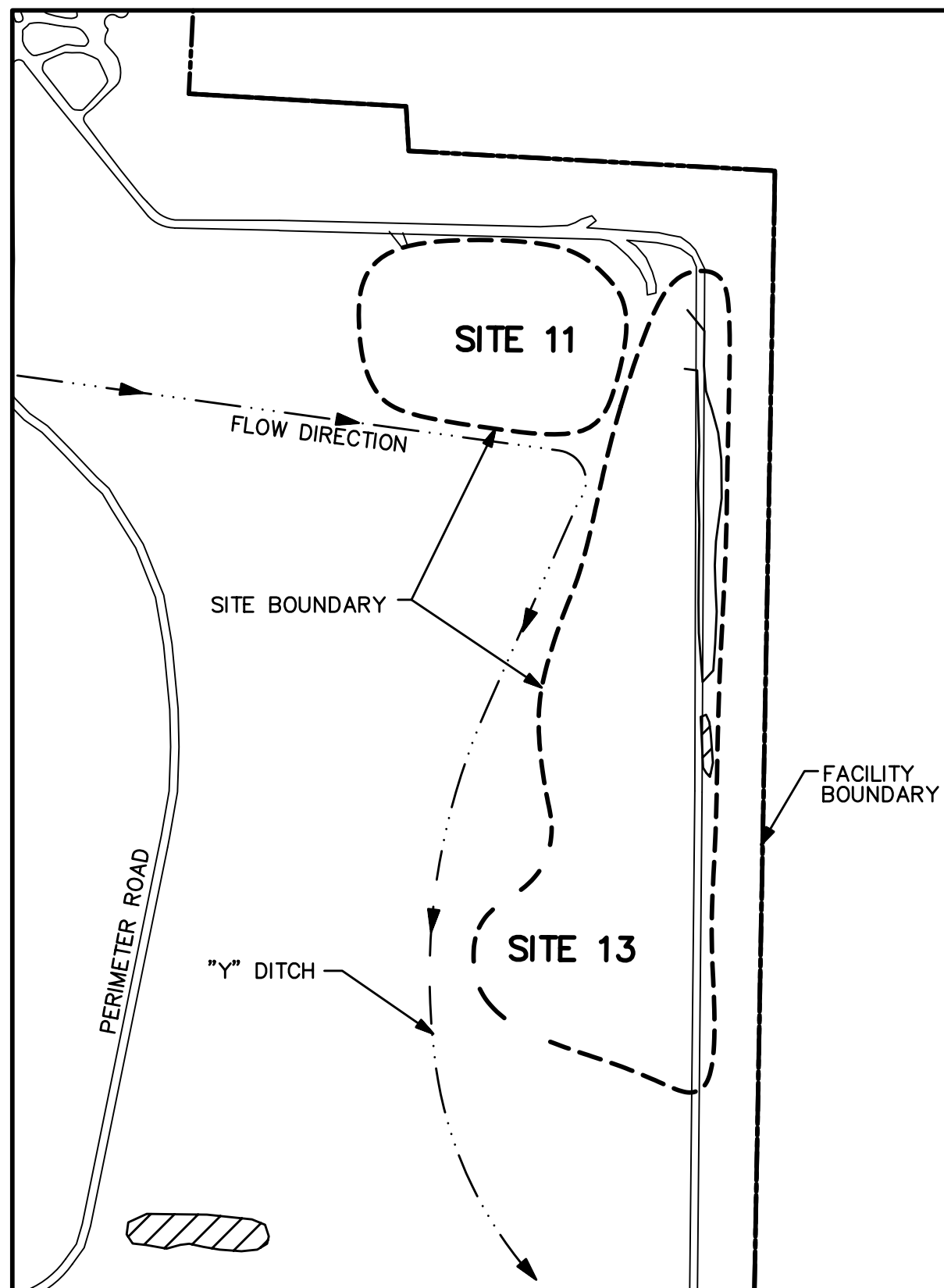


FIGURE 1-1
SITE 13 LOCATION AND AREA MAP
RECORD OF DECISION
NAS WHITING FIELD, MILTON, FLORIDA



future threats to human health or the environment. The risk assessment evaluated the constituents detected in site soil during the RI. One constituent, mercury, was identified as a constituent of concern (COC) in subsurface soil under a residential land use scenario based on the risk assessment. A summary of site risks is provided in Section 2.6 of this Record of Decision (ROD).

No unacceptable ecological risks were identified in the Ecological Risk Assessment (ERA) which is presented in the RI for Site 13 (HLA, 1999); and further ecological study is unwarranted. A discussion of the ecological risk is presented in Section 2.6.2.

Site 13 currently consists of vacant, unused land with exposed soil and sparse native grass and scrub oak vegetative cover. No permanent surface water sources or sediment exist at Site 13.

The response action selected in this ROD is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

1.4 DESCRIPTION OF THE SELECTED REMEDY

This ROD presents the final action for surface and subsurface soils at Site 13 and is based on results of the RI (HLA, 1999), the Feasibility Study (FS) (HLA, 2001), the revised HHRA (TtNUS, 2006c), and the Feasibility Study Addendum (FSA) (TtNUS, 2006a). This ROD only addresses surface and subsurface soil at Site 13.

This ROD does not address actual or potential groundwater contamination at the site. Groundwater at NAS Whiting Field has been identified as a separate site (Site 40, Basewide Groundwater) and will be addressed in a future decision document. There is no surface water or sediment present at Site 13.

The selected remedy for Site 13 is LUCs for surface and subsurface soils. LUCs will be implemented for surface and subsurface soils as described in the original FS (HLA, 2001), Alternative 2. Implementation will include all activities required at Site 13 and include the following:

- Development and implementation of LUCs prohibiting future residential development of the site
- LUCs prohibiting digging into or removal of soil off-site
- Post warning signs

Specific implementation and maintenance actions to ensure the viability of the selected remedy will be described in a Remedial Design (RD) document to be prepared in accordance with USEPA guidance.

Within 90 days of ROD signature, the Navy shall prepare and submit a RD to the USEPA and FDEP for review and approval. The LUC RD shall contain implementation and maintenance actions, including periodic inspections as well as the design and location of warning signs.

The RD will restrict use/access to the land in and around Site 13 and place regulatory control on any activities at the site. The RD will be implemented and enforced in compliance with all local, state and federal regulations. The RD describes all planned operations, maintenance, inspections, and monitoring that will take place at the site.

As part of LUC implementation, follow up site inspections/reviews are required to ensure compliance while the LUCs are in effect. Under CERCLA regulations, site reviews must take place every five years. Warning signs will be posted at the site to discourage trespassing. LUCs will be maintained until concentrations of hazardous substances in soil reach levels that allow for unrestricted use and unlimited exposure. The Navy will be responsible for implementing, maintaining, reporting on, and enforcing the LUCs.

The estimated net present worth (NPW) cost of the selected remedy is approximately \$103,000 over a 30 year period. The selected remedy must remain in place indefinitely, unless all contaminated surface and subsurface soils are removed or subsequent sampling demonstrates they meet then applicable criteria for unrestricted use of the site.

1.5 STATUTORY DETERMINATIONS

The LUC remedy selected for surface and subsurface soils at Site 13 ensures protection of human health and the environment, complies with federal and state requirements legally applicable or relevant and appropriate, is cost effective, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

This remedy does not satisfy the statutory preference for treatment as a principal element of the remedy (i.e., reduction in the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants through treatment as a principal element) because contaminated soils will remain in place. Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on site above residential health-based levels, a statutory review will be required every five years after initiation of the remedy to ensure the remedy continues to be protective of human health and the environment.

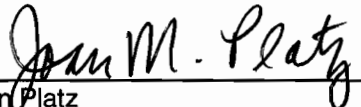
1.6 DATA CERTIFICATION CHECKLIST

The information required to be included in the ROD is summarized on Table 1-1. These data are presented in Section 2.0, Decision Summary, of this ROD. Additional information, if required, can be found in the NAS Whiting Field Administrative Record for Site 13.

TABLE 1-1
DATA CERTIFICATION CHECKLIST
SITE 13 – SANITARY LANDFILL
RECORD OF DECISION
NAVAL AIR STATION WHITING FIELD
MILTON, FLORIDA

Information	ROD Reference
Constituents of Concern (COCs)	Sections 2.5.1.1 and 2.5.1.2 Page 2-7
Baseline risk represented by the COCs	Section 2.6.1 and 2.6.3 Pages 2-8 and 2-9
Cleanup Goals (CGs) established for the COCs.	Section 2.7.1 Pages 2-11
Disposition of source materials constituting principal threat.	Section 2.2 Page 2-1
Current and reasonably anticipated future land use scenarios used for risk assessment.	Section 2.5.4 Page 2-8
Potential land uses available at the site as a result of the selected remedy.	Section 2.10.4 Page 2-21
Estimated capital, operation and maintenance (O&M), and net present worth (NPW) costs, discount rate used and timeframe these costs are projected for the selected remedy.	Section 2.10.3 Page 2-19 Table 2-5 Page 2-20
Key factors leading to the selection of the remedy.	Section 2.10.1 Page 2-14

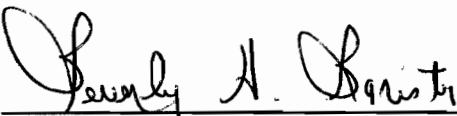
1.7 AUTHORIZING SIGNATURES



Joan Platz
Captain, United States Navy
Commanding Officer, NAS Whiting Field

25 Sep 06

Date



Beverly H. Banister
Acting Director, Waste Management Division
USEPA, Region 4

9-28-06

Date

2.0 DECISION SUMMARY

2.1 SITE NAME, LOCATION, AND DESCRIPTION

Site 13, Sanitary Landfill, is a former landfill approximately four acres in size and is located along the eastern facility boundary near the South Air Field at NAS Whiting Field and is one of six sites (Sites 9 through Site 14) comprising the area known as the Southeast Disposal Area. The site is rectangular in shape and oriented north to south.

The approximate location of Site 13 is shown on Figure 2-1. There are currently no buildings at Site 13. No permanent surface water sources exist in the immediate vicinity of Site 13. However, a vegetated drainage ditch designated the "Y" ditch borders the landfill to the west and south. The landfill is depressed relative to the surrounding land surface, and surface water runoff typically ponds on site. When there is surface runoff from the site, it drains toward Big Coldwater Creek located approximately 8,800 feet (ft) east of the site.

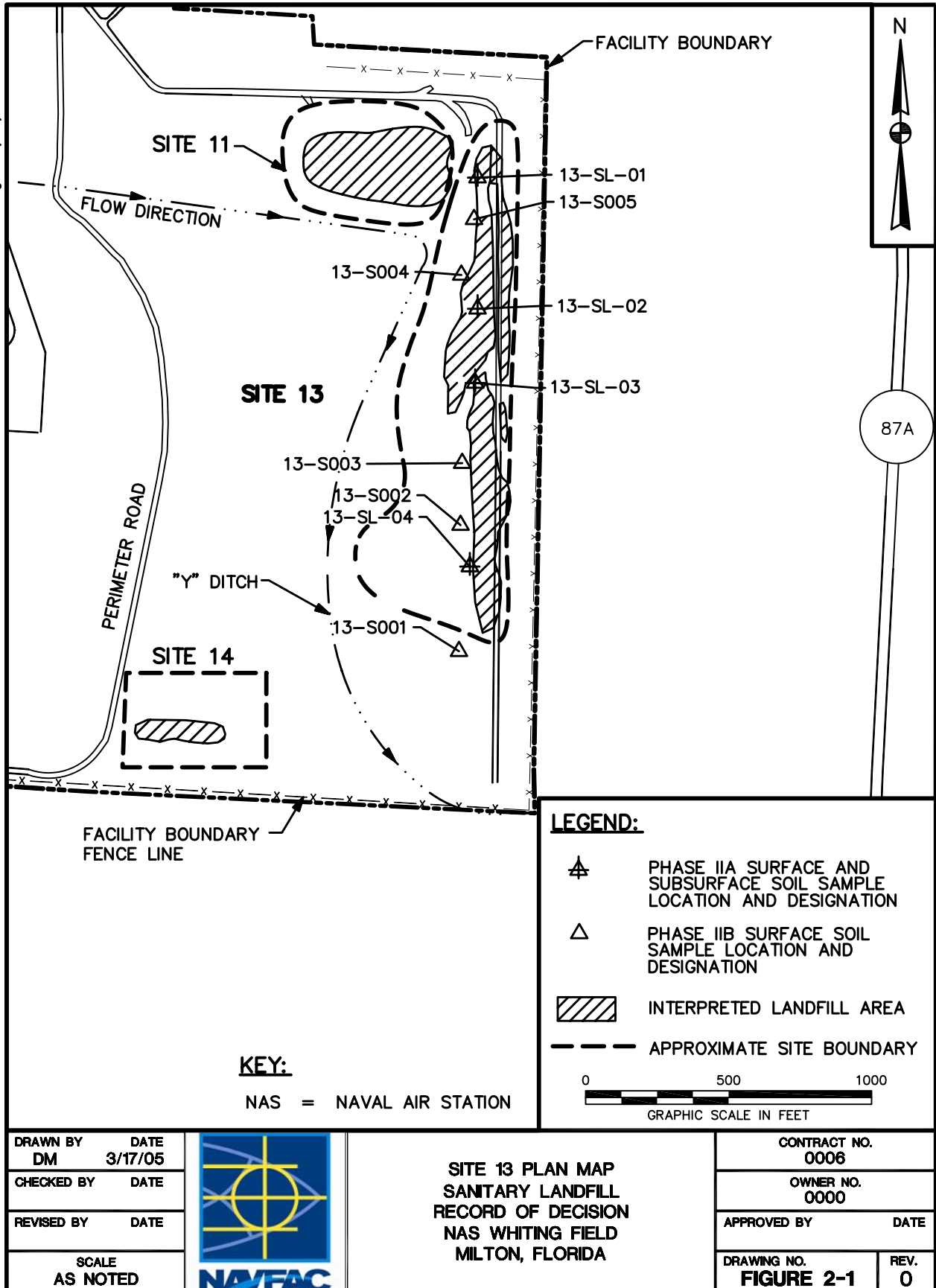
2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES

2.2.1 NAS Whiting Field History

NAS Whiting Field was placed on the National Priorities List (NPL) by the USEPA in June 1994. Following the listing of NAS Whiting Field on the NPL, remedial response activities have been conducted pursuant to CERCLA authority. The decision documents and remedy selection for NAS Whiting Field are developed by the Navy, the lead agency, and the USEPA, a support agency, with concurrence from FDEP, a support agency.

The first environmental studies for the investigations of waste handling and/or disposal sites at NAS Whiting Field were conducted during the Initial Assessment Study (IAS) (Envirodyne Engineers, Inc. (EE), 1985). The record search indicated throughout its years of operation, NAS Whiting Field generated a variety of wastes related to pilot training, operation and maintenance of aircraft and ground support equipment, and facility maintenance programs.

NAS Whiting Field presently consists of two airfields (North and South Fields) and serves as a naval aviation training facility providing support facilities for flight and academic training. The current and anticipated future land use at Site 13 is non-residential / recreational.



2.2.2 Site 13 History

First used in 1979, Site 13 was used as the primary sanitary landfill for NAS Whiting Field from 1979 to 1984 when disposal operations there ceased. During 1979, waste solvents and residue from paint-stripping operations may have been disposed at the site. After 1979, the landfill reportedly received only general refuse and non-hazardous waste. At the time the RI field work was conducted, buried wastes were not exposed at the land surface, and there were no indications of other past waste disposal practices (e.g., stained soil or stressed vegetation).

Past disposal of hazardous waste (described above) at Site 13, although acceptable at the time, had the potential to cause long-term problems through the release of hazardous constituents into the soil and groundwater. As part of the Installation Restoration (IR) Program and the Navy Assessment and Control of Installation Pollutants (NACIP), Site 13 was included in the *Initial Assessment Study, NAS Whiting Field, Milton, Florida*. (EE, 1985) and the *Verification Study* [Geraghty & Miller (G&M), 1986] for NAS Whiting Field.

2.2.3 Site Investigations

Both organic compounds and inorganic analytes were identified at Site 13 during the RI and various investigations as summarized in Table 2-1.

An FS (HLA, 2001) was conducted to identify the best approach to address soil contamination identified in the RI. The FS identified estimated areas impacted by COCs and evaluated three remedial alternatives.

A risk assessment was completed for Site 13 to predict whether the site would pose current or future threats to human health or the environment. Both a HHRA and an ERA were performed for Site 13. These risk assessments evaluated the constituents detected in site soil during the RI.

An FSA (TtNUS, 2006a) was conducted to address the following activities undertaken and determinations made since the original FS was submitted.

Arsenic originally identified as a constituent of potential concern (COPC) was determined to be naturally occurring at Site 13. Based on additional review of inorganic data from the facility and area soil geology in April 2001, the observed arsenic values were determined to represent naturally occurring levels (FDEP, 2001). Because the identified human health risks associated with arsenic are now considered to be due

TABLE 2-1
INVESTIGATIVE HISTORY
RECORD OF DECISION
SITE 13, SANITARY LANDFILL
NAVAL AIR STATION WHITING FIELD
MILTON, FLORIDA

Date	Investigation Title	Activities	Findings
1985	<i>Initial Assessment Study, NAS Whiting Field, Milton, Florida</i> (Envirodyne Engineers, Inc., 1985)	<ul style="list-style-type: none"> Review of historical records and aerial photographs Field inspections and personal interviews 	<ul style="list-style-type: none"> Between 1979 and 1984, Site 13 was the primary sanitary landfill at NAS Whiting Field. In the first year, the landfill received waste solvents, paint, oil, and hydraulic fluid. Site 13 was recommended for additional investigation due to the potential impact on human and ecological receptors.
1986	<i>Verification Study, Assessment of Potential Groundwater Pollution at NAS Whiting Field, Florida</i> (Geraghty & Miller, Inc., 1986)	<ul style="list-style-type: none"> Installation of one monitoring well and groundwater sampling 	<ul style="list-style-type: none"> Low concentrations of lead, mercury, nickel, and zinc were detected below Florida's primary drinking water standards.
1990 - 1999	<i>Remedial Investigation Report, Site 13, NAS Whiting Field, Milton, Florida</i> , [Harding Lawson Associates (HLA), 1999]	<ul style="list-style-type: none"> Geological assessment Hydrogeological assessment PCPT and BAT groundwater sampling Geophysical survey Collection and analysis of surface and subsurface soil samples Installation of groundwater monitoring wells and groundwater sampling Soil gas survey HHRA ERA 	<ul style="list-style-type: none"> The groundwater flow direction is to the south-southeast across. The HHRA determined the carcinogenic risk from exposure to surface soil was within USEPA's acceptable risk range for current and future receptors at Site 13. The total ELCR associated with exposure to surface soil by a hypothetical future resident exceeded FDEP's target level of concern (1×10^{-6}) due to the presence of arsenic. The non-cancer risk associated with ingestion and direct contact of soil under current and hypothetical future land-uses are below USEPA's and FDEP's target HI of 1.0. soil at Site 13.
2001	<i>Feasibility Study for Site 13, NAS Whiting Field, Milton, Florida</i> (HLA, 2001).	<ul style="list-style-type: none"> Evaluated remedial alternatives for site cleanup of COCs. 	<ul style="list-style-type: none"> Five COCs identified for surface soil.
2006	<i>Risk Assessment Re-evaluation of Soils at Sites 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18, NAS Whiting Field, Milton, Florida</i> (TtNUS, 2006c)	<ul style="list-style-type: none"> Evaluated changed conditions at the site and changes in regulatory screening criteria. 	<ul style="list-style-type: none"> One COC identified for subsurface soil.
2006	<i>Feasibility Study Addendum for Site 13, Sanitary Landfill, NAS Whiting Field, Milton, Florida</i> (TtNUS, 2006a)	<ul style="list-style-type: none"> Re-evaluated remedial alternatives for site cleanup of COCs. 	<ul style="list-style-type: none"> One COC identified for subsurface soil based on exceedance of FDEP SCTL.
2006	<i>Proposed Plan, Site 13, Sanitary Landfill, NAS Whiting Field, Milton, Florida</i> , (TtNUS, 2006b)	<ul style="list-style-type: none"> Established public comment period from Aug 15 through Sep 14, 2006. 	<ul style="list-style-type: none"> Proposed remedy: LUCs for Site 13 surface and subsurface soils. No comments received.

Notes:

HLA = Harding Lawson Associates
BAT = Bengt-Arne-Torstensson
HHRA = human health risk assessment
ERA = ecological risk Assessment
HI = hazard index

TtNUS = Tetra Tech NUS, Inc.
USEPA = United States Environmental Protection Agency
SCTLs = Soil Cleanup Target Levels
COC = constituents of concern

to naturally occurring levels, arsenic has not been retained as a COPC, and remediation of arsenic in surface soil is not required for Site 13.

Table 2-1 summarizes the Site 13 investigative history.

2.3 HIGHLIGHTS OF COMMUNITY PARTICIPATION

The FSA and Proposed Plan (TtNUS 2006a and 2006b) for Site 13 were made available to the public for review in August 2006. These documents, and other IR program information, are contained within the Administrative Record in the Information Repository at the West Florida Regional Library, Milton, Florida.

The notice of availability of all site-related documents was published in the Santa Rosa Press Gazette and Pensacola News Journal on August 12 and 13, 2006, respectively, and targeted the communities closest to NAS Whiting Field. The availability notice presented information on the RI, FS, and FSA at Site 13 and invited community members to submit written comments on the Proposed Plan.

A public comment period was held from 15 August through 14 September 2006, to solicit comments on the Proposed Plan. The comment period included an opportunity for the public to request a public meeting; however, a public meeting was not held because one was not requested. The site-related documents were placed in the Information Repository and made available for the public to review. Comments received during the public comment period, if any, are presented in the Responsiveness Summary in Appendix A.

2.4 SCOPE AND ROLE OF REMEDIAL ACTION SELECTED FOR SITE 13

As with many Superfund sites, the problems are complex at NAS Whiting Field. As a result, NAS Whiting Field has been organized into 27 OUs. LUCs were designated as the preferred remedy in the Proposed Plan for the surface and subsurface soils at Site 13. Therefore, this ROD addresses only surface and subsurface soil contamination and presents the final response action as LUCs for surface and subsurface soils at Site 13 only. The groundwater at NAS Whiting Field has been designated as a separate site (Site 40, Basewide Groundwater) and is not addressed in this ROD. As stated earlier, there is no surface water or sediment present at Site 13.

2.5 SITE CHARACTERISTICS

Site 13, Sanitary Landfill, is approximately four acres in size and is located along the eastern facility boundary near the South Air Field at NAS Whiting Field. The site is relatively flat, with very little topographical relief, rectangular in shape, and oriented north to south.

2.5.1 Nature and Extent of Contamination

As part of the RI conducted for Site 13, data were collected to determine the nature and extent of releases of site-derived contaminants in surface and subsurface soil, to identify potential pathways of migration in surface and subsurface soil, and to evaluate risks to human and ecological receptors.

The RI at Site 13 indicated contamination at the site posed unacceptable risks to human receptors from exposure to surface and subsurface soil under a potential future residential land-use scenario. During the RI, one VOC, three SVOCs, and 20 inorganic compounds were detected in the surface soil and seven VOCs, five SVOCs, 20 inorganic compounds, and cyanide were detected in the subsurface soil at Site 13. The individual inorganic constituents, arsenic, aluminum, iron, manganese, and vanadium, detected at the site have no direct evidence of site-related use at Site 13 and the procedures at this site did not likely contribute to the presence of these inorganics in surface soil. Additionally, the site-specific values for these inorganics are within the range of levels found at NAS Whiting Field. Considering the information presented above, arsenic, aluminum, iron, manganese, and vanadium were dropped from consideration as COPCs for Site 13 surface and subsurface soils.

Based on changed conditions, changed risk screening criteria and other determinations made since the FS was submitted, a revised HHRA was conducted. Based on a hypothetical residential land use, the revised HHRA identified five COCs in surface soil. As discussed in Section 2.2 of the ROD, those changes include the following:

- Observed arsenic values were determined to represent naturally occurring levels.
- FDEP Soil Cleanup Target Levels (SCTLs) were changed effective April 2005 and were used as screening criteria.
- USEPA Region IX Preliminary Remediation Goals (PRGs) were used as screening criteria.
- Observed values for aluminum, iron, manganese and vanadium were determined to represent naturally occurring levels; these selected inorganic analytes are not considered COPCs for Site 13 surface and subsurface soils.

Based on the results of the revised HHRA, Alternative 2, LUCs for surface and subsurface soils, remains the preferred remedy for Site 13. Therefore, this ROD documents the selected Remedial Action (RA) for Site 13 as LUCs for surface and subsurface soils.

2.5.1.1 Surface Soil

Surface soil sampling was conducted at Site 13 to determine the nature and extent of contamination at the site and to assess whether or not surface soil could potentially serve as an exposure pathway to human or ecological receptors. Constituents detected in surface soil at Site 13 included one VOC, three SVOCs, and 20 inorganic compounds. No COPCs were identified and no human health risks were identified for exposure to surface soils at Site 13.

A complete list of all constituents sampled and their detected concentrations in surface soil is available in the RI report (HLA, 1999).

2.5.1.2 Subsurface Soil

Subsurface soil sampling was conducted at Site 13 to determine the nature and extent of contamination at the site and to assess whether or not subsurface soil could potentially serve as an exposure pathway to human or ecological receptors. Constituents detected in subsurface soil at Site 13 included, seven VOCs, five SVOCs, 20 inorganic compounds, and cyanide. One COC, mercury, was identified, following the risk assessment for exposure to subsurface soils at Site 13.

A complete list of all constituents sampled and their detected concentrations in subsurface soil is available in the RI report (HLA, 1999).

2.5.2 Ecological Habitat

Site 13 is limited in the quantity and quality of habitat for ecological receptors. Most importantly, the site comprises only a small portion of the home ranges of most wildlife and the limited size and habitat of the site serves to restrict the amount of food available to upper trophic level organisms.

2.5.3 Migration Pathways

Mercury detected in subsurface soils is the only COC at Site 13. The primary agents of migration acting on soil include wind, water, and human activity. Soil can also act as a source medium, allowing COCs to be transported to other media.

Transport of COCs from soil via wind is not expected to be a major transport mechanism due to the depth of the contaminant at Site 13. Vegetation is an effective means of limiting wind erosion of soil.

Humans and, to a lesser extent, ecological receptors are effective at moving soil and can greatly affect the transport of soil-bound chemicals at hazardous waste sites. Under the current use of Site 13, human activity is not a major transport mechanism for the COCs in soil.

Soil erosion—the physical transport of soil via surface water runoff—is currently not considered a major mechanism for the transport of the COC in soil at Site 13 because of (1) the low grade (slope) of the land surface at the site; (2) the vegetation, and the depth of the contaminant the site.

2.5.4 Current and Potential Future Land Use

The current and anticipated future land use at Site 13 is recreational.

2.6 SUMMARY OF SITE RISKS

The HHRA and the ERA performed as part of the RI, provided the basis for selecting the RA for Site 13. The HHRA was revised to evaluate the changed conditions at the site and changes in the regulatory screening criteria. This section of the ROD summarizes the results of the revised HHRA and the ERA for Site 13.

2.6.1 HHRA

The HHRA was revised at Site 13 to characterize the risks associated with potential exposures to site-related contaminants for human receptors. Details of the revised HHRA is provided in Section 7.0 of the *Risk Assessment Re-Evaluation of Soils, Sites 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18* report (TtNUS, 2006c). One COC, mercury, was identified for subsurface soils at Site 13 under a hypothetical residential land use scenario.

2.6.1.1 Risk Characterization

For the risk characterization at Site 13 potential risks were estimated for five receptors (the hypothetical future resident, the typical industrial worker, the construction worker, the maintenance worker, and the recreational user/trespasser). Potential risks were calculated using the methodology presented in Section 2.0 of the revised HHRA. Mercury was the only constituent detected at concentrations in excess of the direct contact, risk based COPC screening levels and consequently was retained as a COC. The detected concentration exceeded the PRG and SCTL.

COPCs for the Site 13 were screened using available background concentrations for soil. Aluminum, arsenic, iron, manganese, and vanadium in surface soil and aluminum, antimony, arsenic, chromium, iron, and vanadium in subsurface soil were eliminated as COPCs, in part, on the basis of background concentrations.

The maximum detected mercury concentration [4.2 milligrams per kilograms (mg/kg)] did not exceed the FDEP industrial SCTL; therefore, mercury was not retained as a COC for industrial exposures to subsurface soil. The maximum detected concentration of arsenic exceeded the SCTL. However, arsenic was not retained as a COC for industrial exposures to subsurface soil at the Site 13 since the levels detected were determined to be naturally occurring.

Also (as discussed above in Section 2.2.2), although concentrations of aluminum, arsenic, iron, and vanadium in surface and subsurface soil exceed respective screening criteria, these inorganics are not known to be associated with past practices or processes at any NAS Whiting Field sites. Soils associated with NAS Whiting Field landfills are composed of natural soil covers and do not reflect subsurface landfill contents. Therefore, these inorganics were not retained as COPCs for direct contact exposures to soil at Site 13.

2.6.2 ERA

A screening ecological risk assessment (SERA) was performed for Site 13. Several organic and inorganic compounds were detected in subsurface soil at concentrations exceeding conservative screening levels and, therefore, were selected as COPCs. These COPCs were assessed in a less conservative Step 3A evaluation.

The results of the Step 3A evaluation indicate the constituents detected in the subsurface soil at Site 13 do not pose unacceptable risks to ecological receptors and will not be evaluated further. Therefore, no COPCs were identified for surface and subsurface soil at Site 13 based on the SERA.

2.6.3 Risk Summary

The risk assessment considered five receptors, the hypothetical future resident, the typical industrial worker, the construction worker, the maintenance worker, and the recreational user, assuming exposure via the ingestion, dermal contact, and inhalation routes of exposure. However, with the possible exception of the maintenance worker, none of the receptors are currently contacting surface or subsurface soils at Site 13.

Mercury was the only constituent selected as a COPC for subsurface soil and evaluated in the quantitative HHRA conducted per USEPA guidelines. Since mercury levels exceeded the FDEP residential SCTLs, the resulting Hazard Index (HI) is greater than 1.0 indicating an unacceptable non-carcinogenic risk. Cancer risk estimates were not calculated because mercury is not a carcinogenic constituent.

The risk assessment was conducted per both USEPA and State of Florida guidelines and methodologies. The HHRA evaluated risks to a hypothetical future resident and a typical industrial worker under both residential and industrial land use scenarios. No constituents were identified as COCs exceeding USEPA risk based standards in surface or subsurface soils; however, one COC, mercury, was found to exceed the FDEP residential SCTL specifically developed for this risk assessment as allowed in the FDEP regulations and guidelines, in subsurface soil.

The response action selected in this ROD is necessary to protect public health or welfare or the environment from the actual or threatened releases of hazardous substances into the environment.

2.6.3.1 Uncertainty Analysis

General uncertainties associated with the risk estimation process and site-specific uncertainties are discussed or referenced in the RI. Uncertainties associated with the revised HHRA for surface and subsurface soil at Site 13 are summarized below:

- Overall site-related risks from soil may be overestimated by the background screening process.
- Potential risks are likely to be overestimated as a result of using the maximum concentration for the COCs.
- Risk is likely overestimated for the general populations exposed to the constituents in the environmental media at the site.

2.7 REMEDIAL ACTION OBJECTIVES

The Remedial Action Objectives (RAOs) for Site 13 are:

- To prevent residential development (such as housing, schools or playgrounds) on the site.
- To address possible future risk of direct exposure to subsurface soil exceeding the FDEP SCTL for mercury.
- To comply with federal and state applicable or relevant and appropriate requirements (ARARs) and

consider to be considered (TBC) guidance in accordance with accepted USEPA and FDEP guidelines.

The RAOs for this site are formulated based on the following criteria:

- Unacceptable human health risk exists for direct exposure to surface soil based on the current and anticipated future non-residential/recreational use of the site.
- FDEP SCTLs (residential land use).
- USEPA Region IX PRGs (residential land use).

The current and future use of the property at this site remains recreational, and the current and future receptors are occupational workers and trespassers.

2.7.1 Cleanup Goals

Cleanup Goals (CGs) establish acceptable exposure levels protective of human health and the environment. The following soil CGs were established for the Site 13 COC:

COC	CG
Mercury	3.0 mg/kg ⁽¹⁾

(1) FDEP SCTL for direct exposure, residential

The CGs were used to determine the areas and volumes of surface and subsurface soils with the potential to impact human health under a residential land-use scenario. The estimated area of mercury-contaminated soil exceeding the CG is 100 square feet with an estimated volume of 15 cubic yards.

2.8 DESCRIPTION OF ALTERNATIVES

As stated in the Proposed Plan (TtNUS, 2006b) and in previous sections of this document, the four remedial alternatives evaluated in the FS (HLA, 2001) required re-evaluation based on the revised HHRA (TtNUS, 2006c). Cleanup alternatives were developed by the Navy, the USEPA, and the FDEP. The four remedial alternatives are listed below and summarized in Table 2-2.

Alternative 1: No Action

Alternative 2: LUCs

Alternative 3: Limited Soil Removal and LUCs

Alternative 4: Soil Cover and LUCs

TABLE 2-2
SUMMARY OF REMEDIAL ALTERNATIVES EVALUATED
RECORD OF DECISION
SITE 13, SANITARY LANDFILL
NAVAL AIR STATION WHITING FIELD
MILTON, FLORIDA

Alternative	Description of Key Components	Cost⁽¹⁾	Duration⁽²⁾
Alternative 1: No Action	No remedial actions are performed at Site 13	\$0	30 Years
Alternative 2: LUCs	Post warning signs. Implementation of LUCs will address contaminants in soil above residential standards. An RD will be submitted to USEPA and FDEP and will detail the implementation plans to prohibit residential use of the property.	\$103,000 ⁽³⁾	30 Years
Alternative 3: Limited Surface and Subsurface Soil Removal (exceeding CGs) and LUCs	Develop project plans for excavation to include delineation/confirmatory sampling. Excavate surface and subsurface soils exceeding residential land use CGs. Backfill excavated areas with clean soil and provide a vegetative cover for nonpaved areas. Post warning signs. Implementation of LUCs will address contaminants in soil above residential standards. An RD will be submitted to USEPA and FDEP and will detail the implementation plans to maintain the site for nonresidential purposes.	\$224,000	30 years
Alternative 4: Soil Cover and LUCs	Develop project plans for soil cover to include delineation/confirmatory sampling. Construct soil cover for soils exceeding residential land use CGs. Provide a vegetative cover for soil cover area. Post warning signs. Implementation of LUCs will address contaminants in soil above residential standards. An RD will be submitted to USEPA and FDEP and will detail the implementation plans to maintain the site for nonresidential purposes.	\$1,186,000	30 Years

⁽¹⁾ Net present worth costs rounded to the nearest thousand dollars.

⁽²⁾ A period of 30 years was chosen for present worth costing purposes only. Under CERCLA, remedial actions must continue as long as hazardous substances, pollutants, or contaminants remain at a site.

⁽³⁾ The cost for implementation of Alternative 2 includes the cost of the required 5-year reviews.

Notes: CG(s) = Cleanup goal(s)
FDEP = Florida Department of Environmental Protection
LUC(s) = land use control(s)
RD = Remedial Design
USEPA = United States Environmental Protection Agency

These alternatives were developed in consideration of site risks, the anticipated future recreational land use, federal and state ARARs and guidance, and the limited ecological habitat at Site 13. These alternatives primarily address protection of human health because, as discussed previously, no unacceptable ecological risk was identified. A detailed description of the four alternatives is provided below.

Alternative 1: No Action (NA). This alternative [estimated total NPW cost of \$0] is required by CERCLA as a baseline for comparison with the other alternatives. The NA alternative assumes no RA would occur and establishes a basis for comparison with the other alternatives. No RA, treatment, LUCs, or monitoring of site conditions would be implemented under the NA alternative. Alternative 1 does not meet chemical-specific ARARs, and there are no action-specific ARARs for this alternative.

Alternative 2: LUCs. (estimated total NPW cost \$103,000): LUCs will prohibit the disturbance of existing soil and to restrict future use of the site to non-residential purposes precluding full-time human contact with contaminated surface or subsurface soils. Future and current land-use concerns are addressed by the LUCs. Alternative 2 achieves compliance with chemical-specific ARARs by implementing LUCs to prevent exposure to surface and subsurface soils exceeding CGs. Compliance with action-specific ARARs would be achieved by proper selection, implementation, and maintenance of LUCs.

Alternative 3: Limited soil removal and LUCs. This alternative (estimated total NPW cost \$224,000) involves removal and off-site disposal of surface and subsurface soil “hot spots” exceeding levels allowed for Florida residential sites and LUCs, as described in Alternative 2 above. LUCs would still be necessary following soil removal to address soil remaining on-site at levels exceeding residential SCTLs. Alternative 3 meets chemical-specific ARARs for surface and subsurface soils. Compliance with action-specific ARARs would be achieved by proper design and execution of contaminated soil removal and off-site disposal activities.

Alternative 4: Soil cover and LUCs. This alternative (estimated total NPW cost \$1,186,000) involves construction of a soil cover for surface and subsurface soils exceeding levels allowed for Florida residential sites and LUCs, as described in Alternative 2 above. Alternative 4 meets chemical-specific ARARs for surface and subsurface soils. Compliance with action-specific ARARs would be achieved by proper design and execution of the soil cover.

2.9 SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES

This section evaluates and compares each of the soil remedial alternatives with respect to the nine criteria outlined in Section 300.430(e) of the NCP. These criteria are categorized as threshold, primary balancing, and modifying and are further explained in Table 2-3. A detailed analysis was performed for each alternative using the nine criteria to select a remedy. Table 2-4 presents a summary comparison of these analyses.

2.10 SELECTED ALTERNATIVE

2.10.1 Summary of Rationale for Remedy

The goals of the selected RA are to protect human health and the environment by eliminating, reducing or controlling hazards posed by the site and to meet ARARs. Based upon the consideration of the requirements of CERCLA, the NCP, the detailed analysis of alternatives, and public comments, Alternative 2 - LUCs were selected to address surface and subsurface soils at Site 13.

This remedy was selected for the following reasons:

- Although concentrations of COCs remaining in soil exceed screening level criteria for a residential use scenario, they do not present an unacceptable threat to human health or the environment assuming only future recreational land uses are permitted at Site 13.
- No unacceptable ecological risks were identified.
- The current and future use of the property at Site 13 remains recreational and the current and future receptors are construction workers and the recreational user/trespasser.

2.10.2 Remedy Description - LUCs

Soil contamination remains at Site 13 at concentrations precluding unrestricted use and unlimited exposure; therefore, the remedy includes LUCs to address unacceptable risk. These LUCs will be implemented to prohibit residential development and eliminate unacceptable risks from exposure to contaminated soil. LUCs, prohibiting residential use and digging, disturbing, or removing of soil, will be placed on an area of land slightly larger than the boundaries of the Site 13 ensuring an appropriate buffer zone is created. Warning signage will be placed along the boundary in locations to be designated in the LUC RD. Figure 2-2 presents the approximate LUC boundaries for Site 13. The LUCs cover only surface and subsurface soils.

TABLE 2-3
EXPLANATION OF DETAILED ANALYSIS CRITERIA
RECORD OF DECISION
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MILTON, FLORIDA

Criterion	Description
Threshold	<p>Overall Protection of Human Health and the Environment. This criterion evaluates the degree each alternative eliminates, reduces, or controls threats to human health and the environment through treatment, engineering methods, or institutional controls (e.g., access restrictions).</p> <p>Compliance with State and Federal Regulations. The alternatives are evaluated for compliance with environmental protection regulations determined to be applicable or relevant and appropriate to the site conditions.</p>
Primary Balancing	<p>Long-Term Effectiveness and Permanence. The alternatives are evaluated based on their ability to maintain reliable protection of human health and the environment after implementation.</p> <p>Reduction of Contaminant Toxicity, Mobility, and Volume Through Treatment. Each alternative is evaluated based on how it reduces the harmful nature of the contaminants, their ability to move through the environment, and the amount of contamination.</p> <p>Short-Term Effectiveness. The potential risks to workers and nearby residents posed by implementation of a particular remedy (e.g., whether or not contaminated dust will be produced during excavation), as well as the reduction in risks resulting from controlling the contaminants, are assessed. The length of time needed to implement each alternative is also considered.</p> <p>Implementability. Both the technical feasibility and administrative ease (e.g., the amount of coordination with other government agencies needed) of a remedy, including availability of necessary goods and services, are assessed.</p> <p>Cost. The benefits of implementing a particular alternative are weighted against the cost of implementation.</p>
Modifying	<p>USEPA and FDEP Acceptance. The final Feasibility Study and the Proposed Plan, placed in the Administrative Record, represent a consensus by the Navy, USEPA, and FDEP.</p> <p>Community Acceptance. The Navy assesses community acceptance of the selected alternative by giving the public an opportunity to comment on the remedy selection process and the selected alternative and then responds to those comments.</p>

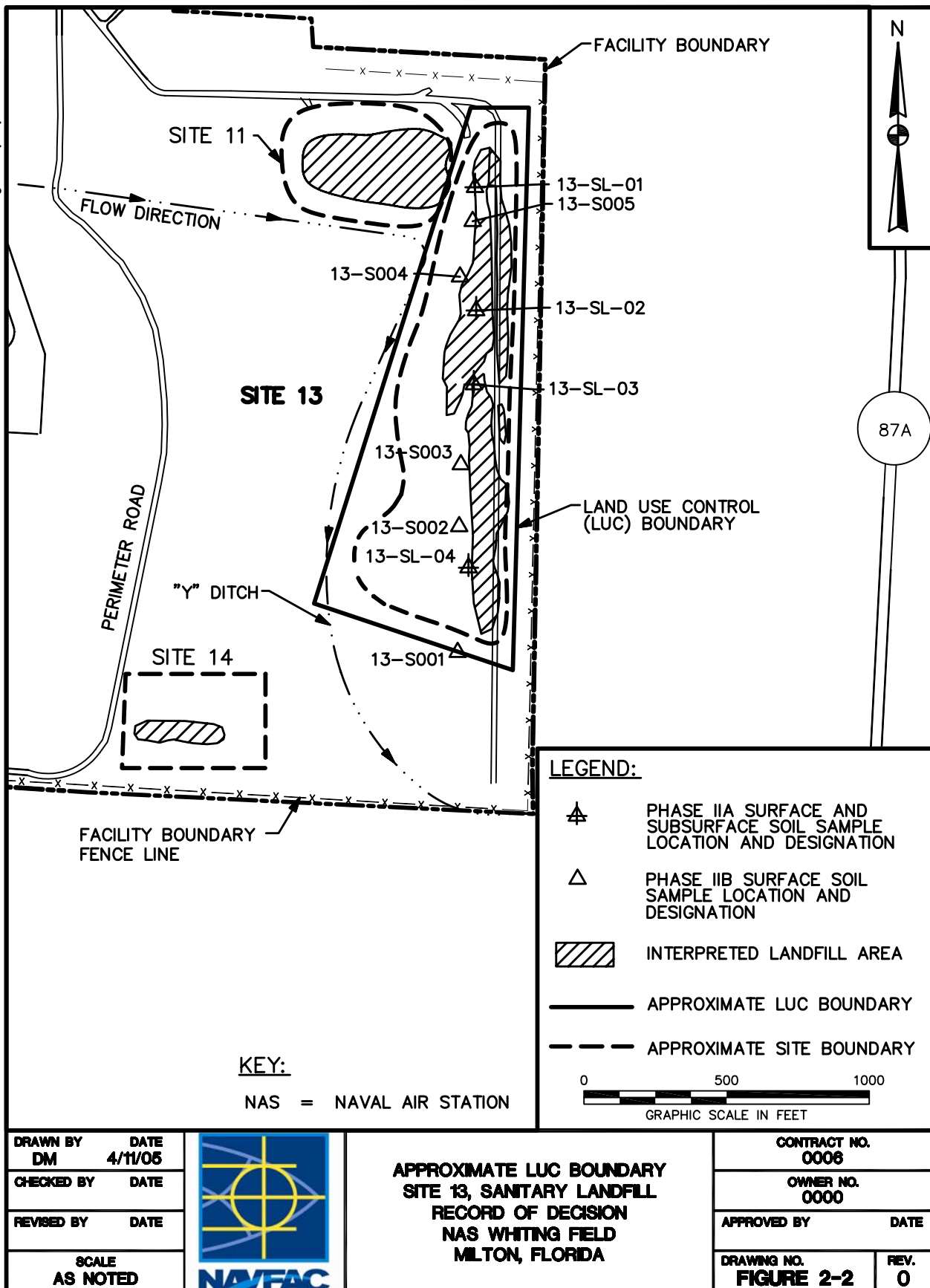
TABLE 2-4
SUMMARY OF COMPARATIVE ANALYSIS OF SOIL REMEDIAL ALTERNATIVES
RECORD OF DECISION
SITE 13, SANITARY LANDFILL
NAVAL AIR STATION WHITING FIELD
MILTON, FLORIDA
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Evaluation Criteria	Soil Alternative 1: No Action	Soil Alternative 2: LUCs	Soil Alternative 3: Limited Soil Removal and LUCs	Soil Alternative 4: Soil Cover and LUCs
Overall Protection of Human Health and Environment	Would not be protective to human receptors exposed to soils at the site.	Would be protective to human receptors. LUCs would prevent unacceptable potential exposure because residential use would be prohibited.	Would be most protective because all surface and subsurface soils exceeding CGs would be removed, eliminating the risk of exposure. LUCs would prevent potential residents from coming into contact with soil exceeding residential standards at the site. Would also provide protection to ecological receptors however, may end up altering the ecological habitat at the site.	Would be very protective because all surface and subsurface soils exceeding CGs would be covered, eliminating the risk of exposure. LUCs would prevent potential residents from coming into contact with soil exceeding residential standards at the site. Would also provide protection to ecological receptors however, may end up altering the ecological habitat at the site.
Compliance with ARARs and TBCs: Chemical-Specific Location-Specific Action-Specific	Would not comply Not applicable Not applicable	Would comply Not applicable Would comply	Would comply Not applicable Would comply	Would comply Not applicable Would comply
Long-Term Effectiveness and Permanence	Would not have long-term effectiveness and permanence because contaminants would remain on site. Any long-term effectiveness would not be known since monitoring would not occur.	Would provide long-term effectiveness and permanence through LUCs preventing residential development. LUCs would preclude existing soil disturbance. Would require long-term management would be administered by the facility through implementing an approved Remedial Design.	Would provide highest level of long-term effectiveness and permanence by active removal of all impacted soil exceeding residential cleanup levels, reducing residual risk from impacted soil left at the site and by implementing LUCs to prevent residential development. Would require long-term management and five-year reviews. LUCs would be administered by the facility through implementing an approved RD.	Would provide high level of long-term effectiveness and permanence by covering all impacted soil exceeding residential cleanup levels, reducing residual risk from impacted soil left at the site and by implementing LUCs to prevent residential development. Would require long-term management and five-year reviews. LUCs would be administered by the facility through implementing an approved RD.
Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment	Would not achieve reduction of toxicity, mobility, or volume of contaminants through treatment but may achieve some reduction through natural processes.	Would not achieve reduction of toxicity, mobility, or volume of contaminants through treatment but may achieve some reduction through natural processes.	Would permanently and significantly reduce mobility of contaminants by excavation, transport, and disposal of impacted soil in a secure, regulated landfill. Provides the greatest reduction of risk through soil removal and off-base disposal. Toxicity of excavated soil may be reduced by treatment at a TSDF.	Would permanently and significantly reduce toxicity and mobility of contaminants by covering impacted soil. Volume of impacted soil would not be reduced.

TABLE 2-4
SUMMARY OF COMPARATIVE ANALYSIS OF SOIL REMEDIAL ALTERNATIVES
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Evaluation Criteria	Soil Alternative 1: No Action	Soil Alternative 2: LUCs	Soil Alternative 3: Limited Soil Removal and LUCs	Soil Alternative 4: Soil Cover and LUCs
Short-Term Effectiveness	Would not result in short-term risks to site workers or adversely impact the surrounding community and would not achieve the soil RAOs and CGs.	Would not result in short term risks to site workers or adversely impact the surrounding community and would not achieve the soil CGs. Estimated time to reach RAOs is less than one year.	Would create potential short term risk to site workers during excavation. Would pose potential short-term risks to community members due to spills during transportation of contaminated soil to an off-site landfill. Environmental impacts (fugitive dust and runoff) are expected to be minimal. Engineering controls would minimize any environmental impacts. RAOs and CGs would be met within less than one year.	Would create short-term risks of worker exposure and potential fugitive dust during soil cover construction. Environmental impacts (fugitive dust and runoff) are expected to be minimal. Engineering controls would minimize any environmental impacts. RAOs and CGs would be met within less than one year.
Implementability	Would be simple to implement because no action.	Would be easily implemented. Would require monitoring of the site and potential exposure. Equipment, specialists, and materials for this alternative are readily available.	Would be easily implemented. This remedial technology is proven and reliable. Would require use of a TSDF, which are available and have sufficient capacity to meet the requirements of this alternative. Equipment, specialists, and materials for this alternative are readily available.	Would be easily implemented. This remedial technology is proven and reliable. Equipment, specialists, and materials for this alternative are readily available.
Cost: Capital NPW O&M (30 year) Total cost, NPW (30 year)	 \$0 \$0 \$0	 \$23,000 \$80,000 \$103,000	 \$74,000 \$150,000 \$224,000	 \$1,130,000 \$56,000 \$1,186,000

CG = Cleanup Goal
LUC = Land Use Control
NPW = Net Present Worth
PPE = personal protection equipment
RAO = Remedial Action Objective
RD = Remedial Design
TSDF = Transport, Storage, and Disposal Facility



The LUC performance objectives for Site 13 are:

- Maintain the integrity of the remedial system, LUCs.
- Prohibit the development and use of the property for residential housing, elementary and secondary schools, child care facilities, and playgrounds.
- Prohibit digging into or disturbance of the existing soil or removal of soil off-site.

The LUCs will:

- Restrict future use of the site to non-residential/recreational activities involving less than full-time human contact (such as parks and trails) with surface and subsurface soils.

The Navy or any subsequent owners shall not modify, delete, or terminate any LUC without USEPA and FDEP concurrence. The LUCs shall be maintained until the concentrations of hazardous substances in the soils have been reduced to levels allowing for unlimited exposure and unrestricted use. The Navy will be responsible for implementing, maintaining, inspecting, reporting, and enforcing the LUCs described in this ROD in accordance with the approved LUC RD. Although the Navy may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, the Navy shall retain ultimate responsibility for remedy integrity. Should this LUC remedy fail, the Navy will ensure appropriate actions are taken to re-establish its protectiveness and may initiate legal action to either compel action by a third party(ies) and/or to recover the Navy's costs for remediating any discovered LUC violation(s).

Within 90 days of ROD signature, the Navy shall prepare the LUC RD in accordance with USEPA guidance and submit to the USEPA and FDEP for review and approval. The RD shall contain LUC implementation and maintenance actions, including periodic inspections. When the selected remedy is implemented, predicted site risks will be minimized.

2.10.3 Summary of Estimated Remedy Costs

The total estimated NPW cost of Alternative 2 at Site 13 is approximately \$103,000 over a 30-year period, based upon an annual discount rate of six percent. Table 2-5 summarizes the cost estimate data for Alternative 2. The information is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. Major changes may be documented in the form of a memorandum in the Administrative Record file, an explanation of significant

TABLE 2-5

**SELECTED ALTERNATIVE COST ESTIMATE SUMMARY
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CAPITAL COSTS	
Description	Cost
1. Project Planning	\$1,379
2. Mobilization/Demobilization	\$0
3. Decontamination	\$0
4. Site Preparation	\$0
5. Excavation/Backfill	\$0
6. Off-site Transportation and Disposal	\$0
7. Site Restoration	\$0
8. LUC Implementation	<u>\$18,242</u>
Subtotal	\$19,591
Contingency Allowance (10%)	\$1,959
Engineering/Project Management (5%)	<u>\$978</u>
Total Capital Cost	\$22,529
OPERATION AND MAINTENANCE COSTS	
Description	Cost
1. Total Operation and Maintenance Costs (including 5-year reviews)	\$80,380
Total Net Present Worth Cost for Selected Alternative	\$102,909

differences, or a ROD amendment. The estimate is an order-of-magnitude engineering cost estimate expected to be within +/- 25 percent of the actual project cost.

2.10.4 Expected Outcome of the Selected Remedy

Immediately upon implementation, Site 13 will be environmentally safe for its current and intended future use as recreational, as long as the LUCs are in place and observed.

2.11 STATUTORY STATEMENT

The alternative selected for Site 13 is consistent with the Navy's IR program, CERCLA, and NCP. The selected remedy for surface and subsurface soil is protective of human health and the environment.

The selected remedy eliminates, reduces, or controls risks by implementing LUCs to (1) restrict future use of the site to non-residential activities involving less than full-time human contact with surface and subsurface soil and (2) prohibit digging into or disturbance of the existing soil. No unacceptable short-term risks or cross-media impacts will be caused by implementation of the remedy. Comparison of the selected remedy to the nine USEPA evaluation criteria is summarized in Table 2-6.

The selected remedy achieves compliance with chemical-specific ARARs by implementing LUCs to prevent exposure to surface and subsurface soils exceeding CGs. Compliance with action-specific ARARs will be achieved by the proper selection, implementation, and maintenance of LUCs. Table 2-7 provides a summary of ARARs and guidance documents specific to the selected remedy.

The selected remedy is cost effective and provides a balance between cost and overall effectiveness in the protection of human health and the environment. Permanent solutions and treatment are used to the maximum practicable extent; however, the selected remedy does not provide for on-site treatment of contaminated material due to the nature of the contaminants and their location. Although the statutory preference for treatment is not met by the selected remedy, the remedy provides the best balance among the evaluated alternatives, with respect to the balancing and modifying evaluation criteria listed in Table 2-7.

Because LUCs would result in hazardous substances remaining on site, five-year reviews will be required after commencement of the RA (for a period of at least 30 years) to ensure the remedy continues to provide protection of human health and the environment.

TABLE 2-6
SUMMARY EVALUATION OF SELECTED REMEDY
RECORD OF DECISION
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Evaluation Criteria	Assessment
Overall Protection of Human Health and the Environment	Human receptors will be protected if this alternative is implemented. Regulatory controls (i.e., LUCs) will prohibit potential future residents from exposure to the site because residential use of the site will be restricted under the proposed LUCs. LUCs will also prohibit digging into or removal of existing soil at the site.
Compliance with ARARs	This alternative achieves compliance with chemical-specific ARARs and TBC guidance by implementing LUCs to prevent exposure to surface and subsurface soils exceeding CGs. It meets action-specific ARARs by proper selection and maintenance of the LUCs. Meets all other NAS Whiting Field requirements.
Long-Term Effectiveness	The risks to future workers or trespassers based on exposure to surface and subsurface soils at the site is addressed by LUCs. The long-term effectiveness and permanence of these controls will be controlled by the installation through the implementation of an approved RD. Administrative actions proposed in this alternative (e.g., 5-year site reviews) would provide a means of evaluating the effectiveness of the alternative. These administrative actions are considered to be reliable controls, as long as the facility implements the approved RD.
Reduction of Toxicity, Mobility, and Volume through Treatment	This alternative does not treat the soil contaminants and thus does not reduce the toxicity, mobility, or volume through treatment.
Short-Term Effectiveness	The implementation of this alternative is estimated to take less than 1 year. No adverse impacts are expected as a result of implementing LUCs.
Implementability	Would be easily implemented. Would require monitoring of the soil for removal or other damage and potential exposure. Equipment, specialists, and materials for this alternative are readily available.
Cost	The total present worth cost of Alternative 2 is \$103,000.
Federal and State Acceptance	The USEPA has approved and the FDEP has concurred with the selected remedy.
Community Acceptance	The community was given the opportunity to review and comment on the selected remedy. No comments were received and no public meeting was requested (see Appendix A). Therefore, the selected RA proposed in the Proposed Plan was not altered.
Notes: ARAR = applicable or relevant and appropriate requirement FDEP = Florida Department of Environmental Protection LUC = land use control RA = remedial action RD = remedial design TBC = to be considered USEPA = United States Environmental Protection Agency	

TABLE 2-7

**SUMMARY OF FEDERAL AND STATE ARARS AND GUIDANCE SPECIFIC TO THE SELECTED REMEDY
RECORD OF DECISION
SITE 13, SANITARY LANDFILL
NAVAL AIR STATION WHITING FIELD
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Authority	Requirement	Citation	Status/Type	Synopsis	Evaluation/Action To Be Taken
Federal Regulatory Requirement	USEPA Region IX Preliminary Remedial Goals (PRGs)		Relevant and Appropriate / Chemical-Specific	These guidelines aid in the screening of constituents in soil. USEPA has requested use of these PRGs as ARARs at NAS Whiting Field.	Will be used to identify constituents of concern (COCs) and for the development of soil cleanup goals at Site 13.
Federal Regulatory Requirement	Cancer Slope Factors (CSFs)		TBC / Chemical-Specific	Guidance values used to evaluate the potential carcinogenic hazard caused by exposure to contaminants.	Were considered for development of human health protection PRGs for soil at this site
Federal Regulatory Requirement	Reference Doses (RfDs)		TBC / Chemical-Specific	Guidance values used to evaluate the potential noncarcinogenic hazard caused by exposure to contaminants	Were considered for development of human health protection PRGs for soil at this site
State Regulatory Requirement	Contaminant Cleanup Target Levels Rule [Soil Cleanup Target Levels (SCTLs)]	F.A.C. Chapter 62-777	TBC / Chemical-Specific	This rule provides guidance for soil cleanup levels developed on a site-by-site basis.	Will be used to identify COCs and for the development of soil cleanup goals at this site.
Federal Regulatory Requirement	Occupational Safety and Health Administration (OSHA) General Industry Standards	29 CFR Part 1910	Applicable / Action Specific	Requires establishment of programs to assure worker health and safety at hazardous waste sites, including employee-training requirements	These regulations will apply to all soil remedial activities at Site 13.
Federal Regulatory Requirement	OSHA, Occupational Health and Safety Regulations	29 CFR Part 1910, Subpart Z	Applicable / Action Specific	Establishes permissible exposure limits for workplace exposure to a specific listing of chemicals	Will be applied to control worker exposure to OSHA hazardous chemicals during remedial activities.
Federal Regulatory Requirement	OSHA, Recordkeeping, Reporting, and Related Regulations	29 CFR Part 1904	Applicable / Action Specific	Provides recordkeeping and reporting requirements applicable to remedial activities.	These requirements will apply to all site contractors and subcontractors and will be followed during all site work.

TABLE 2-7

**SUMMARY OF FEDERAL AND STATE ARARS AND GUIDANCE SPECIFIC TO THE SELECTED REMEDY
RECORD OF DECISION
SITE 13, SANITARY LANDFILL
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Authority	Requirement	Citation	Status/Type	Synopsis	Evaluation/Action To Be Taken
Federal Regulatory Requirement	OSHA, Health and Safety Standards	29 CFR Part 1926	Applicable / Action Specific	Specifies the type of safety training, equipment, and procedures to be used during the site investigation and remediation.	All phases of the remedial response project will be executed in compliance with these standards.
Federal Regulatory Requirement	CERCLA and the NCP Regulations	40 CFR, Section 300.430	Applicable / Action Specific	Discusses the types of institutional controls to be established at CERCLA sites.	These regulations may be used as guidance in establishing appropriate institutional controls at Site 13.
State Regulatory Requirement	Florida Rules on Hazardous Waste Warning Signs	F.A.C. Chapter 62-730	Applicable / Action Specific	Requires warning signs at NPL and FDEP-identified hazardous waste sites to inform the public of the presence of potentially harmful conditions.	This requirement will not be met.
Federal Regulatory Requirement	NA	NA	NA	NA	There are no Federal Location-Specific ARARs specific to this site.

Notes: NA = Not Applicable

2.12 DOCUMENTATION OF SIGNIFICANT CHANGES

No significant changes have occurred at Site 13 since the public comment period for the Proposed Plan (TtNUS, 2006b).

REFERENCES

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Geraghty & Miller, Inc. (G&M), 1986. *Verification Study, Assessment of Potential Groundwater Pollution at NAS Whiting Field, Milton, Florida*. Final Report. Prepared for NAVFAC EFD SOUTH, North Charleston, South Carolina.

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Tetra Tech NUS, Inc. (TtNUS), 2006a. *Feasibility Study Addendum for Site 13, Sanitary Landfill, Surface and Subsurface Soil, Naval Air Station Whiting Field, Milton, Florida*. Prepared for NAVFAC SE, North Charleston, South Carolina. January.

TtNUS, 2006b. *Proposed Plan for Site 13, Sanitary Landfill, Naval Air Station Whiting Field, Milton, Florida*. Prepared for NAVFAC SE, North Charleston, South Carolina. January.

TtNUS, 2006c. *Risk Assessment Re-evaluation of Soils, Sites 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18, Naval Air Station Whiting Field, Milton, Florida*. Prepared for NAVFAC SE, North Charleston, South Carolina. September.

APPENDIX A

COMMUNITY RELATIONS RESPONSIVENESS SUMMARY

**Responsiveness Summary
Site 13, Sanitary Landfill
Naval Air Station Whiting Field
Milton, Florida**

A public comment period on the Site 13 Proposed Plan was held from 15 August 2006 through 14 September 2006. No public comments were received, and because a public meeting was not requested one was not held.